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INCOME EFFECTS OF ALTERNATIVE TRADE POLICY ADJUSTMENTS ON PHILIPPINE RURAL HOUSEHOLDS: A GENERAL EQUILIBRIUM ANALYSIS

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Income Effects of Alternative Trade Policy Adjustments on Philippine Rural Households: A General Equilibrium Analysis.

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Three types of trade policy adjustments to deal with an unsustainable current account deficit are examined in this paper for their economywide income and equity effects, based on the results of simulation experiments using a CGE model of the Philippine economy. Gross domestic product (GDP) expectably decreases with import rationing and less markedly, with the imposition of a general import surtax; by contrast, adjustment through the reduction of tariffs leads to a larger GDP. The latter result, however, is counterbalanced by a substantial loss in government income. With respect to the distribution of income gains (and losses), the additional market distortions and rent-seeking that accompany the implementation of import rationing heavily discriminate in favor of Metro Manila households, whose average income is the highest among the five household groups distinguished in the model. Moving to a general import surtax represents an improvement in that non-Metro Manila households are penalized less. However, these first two policy options are deemed inferior to tariff liberalization--which yields larger income benefits to small-farm and "other rural" households relative to the more affluent Metro Manila, other urban, and large-farm households.

Key words: CGE modeling, trade policy adjustments, Philippine economy, rural households

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INCOME EFFECTS OF ALTERNATIVE TRADE POLICY ADJUSTMENTS ON PHILIPPINE RURAL HOUSEHOLDS: A GENERAL EQUILIBRIUM ANALYSIS

1. INTRODUCTION

Unsustainable current-account deficits have been a common underlying factor in the unstable economic growth of many developing countries over the past few decades. The capital inflows that accommodate such deficits represent additional financial resources that can increase domestic investment in the short run. However, they can also lead to an overvalued exchange rate, distorting relative profitabilities, resource allocation, and investment efficiency. In particular, exchange rate overvaluation acts as a tax on the production of tradable goods, which in many developing countries include their major agricultural products.

This paper examines quantitatively the economywide income and equity effects, focusing on lower-income rural households, of alternative trade policy adjustments to cope with an unsustainable current-account deficit. The context is the Philippines which in the 1970s and 1980s was buffeted by a succession of external shocks and associated macroeconomic imbalances, the latter also partly induced by inappropriate domestic policies (Power 1983, Bautista 1988). We make use of a computable general equilibrium (CGE) model of the Philippine economy in generating the comparative results of simulation experiments involving alternative trade policy adjustments.

The relative merits of alternative policy regimes need to be evaluated, at least in the Philippine case, in terms of their effects on both income growth and equity. This is in view of the country's past development experience in which spurts of economic growth were not accompanied by a reduction in poverty and income inequality (Bautista 1992). Indeed, the overall distribution of income in the Philippines has remained highly skewed, the incidence of poverty being the highest among landless agricultural workers and cultivators of small-sized farms (Balisacan 1992). The induced changes in the relative incomes of small farmers and rural laborers therefore warrant particular attention.

Section 2 describes the nature of external shocks to the Philippine economy, the severity of current-account deficits, and the changes in trade policies adopted, since the early 1970s. In Section 3, we briefly discuss the structure of the CGE model for the Philippines used in the present study. Section 4 describes the model simulations and comparative results of alternative trade policy adjustments to deal with the current-account imbalance. The paper ends, in Section 5, with some concluding remarks.

2. EXTERNAL SHOCKS, CURRENT ACCOUNT IMBALANCES, AND TRADE POLICIES

Like many other oil-importing developing countries, the Philippines incurred large current-account deficits arising from the marked deterioration of the external terms of trade that began in 1973-74 with the quadrupling of the world price of oil. The latter's adverse impact was clear and direct, the Philippines being dependent on imported oil for over 90 percent of its energy requirements. At about the same time, the world commodity boom of 1972-74 ended, ushering in almost a decade-long period of declining prices for the country's principal exports (sugar, coconut products, logs, and minerals). As a result the external terms-of-trade index (1987=100) declined almost continuously from 173.1 in 1973 to 113.6 in 1979 and 85.7 in 1982 (World Bank 1993:490-491). The current account changed from a positive balance of US$337 million in 1973 to deficits of $362 million in 1974, $1,621 million in 1979, and $3,364 million in 1982--the latter representing about one-third of Philippine "trade" (average of import and export values) and 10 percent of GDP.

Increased capital inflows accommodated the burgeoning current-account deficits. There was a small net capital outflow of $49 million in 1973, which reversed to a substantial foreign borrowing of $642 million in 1974; it then increased continuously to nearly $3 billion in 1982, just before the external debt-related foreign exchange crisis came to a head in the following year.

External financing effectively propped up the exchange rate, at least until the early 1980s. Although a flexible exchange rate policy was being followed, the massive capital inflows removed the immediate pressure for the domestic currency to depreciate. When foreign borrowing was sharply reduced, as happened in 1983 (following the assassination of the political opposition leader, Benigno Aquino), exchange rate adjustments could no longer be postponed. There was understandably a large depreciation of the Philippine peso (by about 30 percent relative to the U.S. dollar) in 1983.

With active support by the World Bank, the Philippine government initiated a "structural adjustment" program in 1981. It included measures to gradually liberalize the foreign trade regime through tariff reform and relaxation of import licensing. There was wide agreement by that time, within and outside government circles, that restrictive

trade policies have excessively protected import-substituting industries at the expense of agriculture and export-oriented enterprises. Unfortunately, the program was overtaken by the 1983 foreign exchange crisis, and some of its components were superseded by policy actions designed to deal with short-term contingencies.

Import rationing was implemented, reminiscent of the comprehensive system of direct controls on imports and foreign exchange installed by the government during the 1950s (see Power and Sicat 1971). Additional trade taxes were also imposed, including a general 3 to 5 percent import surtax. During 1983-84 the Philippine peso was devalued three times before it was allowed to float in October 1984. Under an IMF standby agreement, the Central Bank reduced money supply growth from 19 percent in 1983 to 7 percent in 1984 and 10 percent in 1985. Relatedly, government current expenditure was lower (in real terms) by 19 and 11 percent in 1984 and 1985, respectively, than in 1983. The current account improved dramatically, the deficit (after official transfers) decreasing from US$2,771 million in 1983 to US$1,294 million in 1984 and US$35 million in 1985. However, GDP growth turned negative during 1984-85 (-7.3 percent in each year), which was widely believed to have contributed to the downfall of the Marcos regime in early 1986.

Under the new government of Corazon Aquino, who served as President from 1986 to 1992, macroeconomic policies became more expansionary. There was a resumption of large capital inflows, accommodating a current-account deficit of US$2,695 million by 1990. Trade liberalization was given increased emphasis as significant tariff reductions and relaxation of quantitative restrictions were implemented. Further tariff cuts and import liberalization measures were adopted under the administration of President Fidel Ramos, who took office in 1992. The average import-weighted tariff rate has been reduced to 14 percent by mid-1995, and a uniform tariff rate of 5 percent by 2003 is targeted.

In light of the foregoing discussion, the following types of trade policy adjustment to deal with an unsustainable current-account imbalance appear relevant in the Philippine context: (1) import rationing; (2) a uniform surcharge on imports; and (3) trade liberalization. Each of these trade policy responses will be examined below for their economywide income and equity effects, with focus on rural households, based on the simulation results from a CGE model of the Philippine economy. The model's

underlying accounting framework and benchmark data derive from a balanced SAM (social accounting matrix) for 1979 constructed earlier (Thomas and Bautista 1995).

3. THE CGE MODEL

The CGE model used in the present study follows closely what has become a standard theoretical specification of trade-focused general equilibrium models (Robinson 1989). Markets for goods, factors, and foreign exchange are assumed to respond to changing demand and supply conditions, which in turn are affected by government policies and the external environment. The model is Walrasian in that it determines only relative prices and other variables in the real sphere of the economy. An appendix to this paper contains the CGE model specification and parameterization (available from the authors on request). A GAMS program is used to implement the model.

There are five agricultural crop sectors ("palay" or unmilled rice, corn, coconut, sugarcane, and other crops) among the 16 production sectors in the model. The other sectors include livestock, fishery, forestry, mining, rice and corn milling, other food processing, light manufacturing, other manufacturing, fertilizer, energy, and services. Households are classified into three rural (large-farm, small-farm, and other rural) and two urban (Metro Manila and other urban) categories. Households in Metro Manila had the highest average income (46.7 thousand pesos) in 1979 (the benchmark year), followed by the large-farm and other urban households (31.9 and 24.7 thousand pesos, respectively). Small-farm and other rural households were the poorest (with average incomes of 17.3 and 13.7 thousand pesos, respectively).

Four primary factorrs are distinguished in the model, namely, skilled labor, unskilled labor, land, and capital. Factor market distortions are allowed, differentiated by sector according to the extent to which the average return for a factor differs from the marginal revenue product of that factor.

The production technology is represented by a set of nested CES and Leontief functions. Domestic output in each sector is a CES function of value added and aggregate intermediate input use. Value added is a CES function of the primary factors, while intermediate input use is defined by fixed input-output coefficients. Each sector is assumed to produce differentiated goods for the domestic and export markets, sectoral output being a CET function of the amounts sold in the two markets. Subject to this

transformation function, producers maximize revenue from sales. Similarly, imported and domestic products are differentiated at the sectoral level. The composite (consumption) good is a CES aggregate, and consumers minimize the cost of obtaining a given amount of composite good.

Based on the small-country assumption, the domestic price of sectoral imports is represented in terms of the foreign price, exchange rate, and tariff rate. The country is also assumed small on the export side; the domestic price of sectoral exports is therefore determined by the world price, exchange rate, and any applicable export tax. Positive externality is associated with sectoral export performance, total factor productivity in each sector being enhanced by increased exporting (de Melo and Robinson 1992).

The four components of sectoral demand are intermediate, consumption, investment, and government. Fixed input-output coefficients determine intermediate demand. Household consumption demand is based on the Cobb-Douglas utility function and associated fixed expenditure shares. Inventory investment is assumed proportional to sectoral output, while fixed investment is the difference between total investment and inventory demand. Government consumption expenditures are in fixed proportion to the exogenously determined total government consumption.

Aside from the supply-demand balances in the product and factor markets, three macroeconomic balances are specified in the model: (1) the fiscal balance, showing that government savings is the difference between government revenue and spending; (2) the external balance, equating the supply and demand for foreign exchange; and (3) the specification that total investment is determined by total savings, which corresponds to the "neoclassical" macroeconomic closure (Robinson 1989).

The model makes use of the numerical SAM for 1979 as database, representing the initial conditions that are perturbed by the postulated exogenous shocks (changes in trade policy). The economywide effects of these shocks should be interpreted, therefore, in reference to the domestic price structure existing in 1979.

4. MODEL SIMULATIONS AND RESULTS

Three of the four policy options considered here for model simulation are subject to the macroeconomic constraint that the current-account deficit is reduced to zero.

This is obviously an extreme case that may arise only if the economy is in a financial crisis. Normally, some level of current-account deficit is sustainable for developing countries during the early, capital-borrowing stage of economic development. In the Philippine context, the external debt-related foreign exchange crisis that began in October 1983 was in fact accompanied by a drastic (involuntary) reduction of foreign borrowing through early 1986 and associated decline in the current-account deficit to less than 0.1 percent of GDP in 1985. Counterfactually simulating a movement toward a balanced current account serves to dramatize the comparative effects of alternative trade policy adjustments.

The first trade policy option (Simulation I) involves the imposition of direct import control, the quantity restrictions affecting all sectors equally in proportionate terms. An 8 percent across-the-board reduction of base-year sectoral imports is applied that insures a balanced current account. The resulting scarcity premium on imports (or quota rent), representing the difference between the implicit and legal tariffs, is reasonably assumed (reflecting political reality) to accrue to Metro Manila households.

In our second counterfactual experiment (Simulation II), the government is assumed to levy an additional tax on imports (beyond the existing tariffs), representing therefore a price disincentive. A general import surtax of 4 percent is used, which is within the 3-5 percent additional import tax actually charged in the aftermath of the 1983 foreign-exchange crisis.

The third policy option (Simulation III) is trade liberalization. Specifically, it involves a shift from the highly restrictive import policy that existed in 1979 to adopting a uniform tariff rate of 5 percent that, as already indicated, is officially targeted by year 2003. This represents a fundamental policy reform, in contrast to the first two options which are nonstrategic trade policy adjustments, that can improve microeconomic efficiency and the economy's long-run growth prospects.

A fourth policy scenario (Simulation IV) that is also useful to consider is one in which the tariff reduction is accompanied by only a 50 percent cut in the current-

account deficit. The latter serves as a "carrot" that makes trade policy reform attractive, and approximates more closely the macroeconomic adjustment in many developing countries actively supported by the two Bretton Woods institutions.

The simulation results are presented in Table 1, including the effects on household and enterprise incomes, as well as those on some macroeconomic variables of major policy interest. We observe first that there are marked differences in the macroeconomic effects of the alternative trade policy adjustments. GDP declines significantly as a result of import rationing (Simulation I), which is not surprising since it adds to the existing market distortions and rent seeking. By contrast, trade liberalization increases GDP; having to reduce the current-account deficit by only 50 percent (Simulation IV)) leads to an additional GDP growth rate of about 1.4 percent relative to the balanced current account scenario (Simulation III). Government income expectably goes up with the imposition of an import surtax (Simulation II), but decreases with import rationing and, more drastically, with the tariff-reduction scenarios. The latter implies that the positive revenue effect of the expanded income-tax base (due to the larger GDP) does not fully offset the direct impact of a lowering the tariff rate to a uniform 5 percent.

Trade liberalization under both Simulations III and IV is seen to result in a large increase in total imports and, to meet the requirement of a balanced current account, an even larger proportionate increase in total exports. As might be expected, Simulations I and II lead to import compression, and the worst export performance is associated with the import control regime. Relatedly, the increased import restrictions cause the exchange rate to appreciate, while the tariff reduction under Simulations III and IV leads to an exchange rate depreciation.

Turning to the income and equity effects, we find that Metro Manila households are the only beneficiary of import rationing, the other household groups suffering relatively large income losses (from 6.3 to 9.7 percent of base-year incomes). Under Simulation II, incomes of all five household groups decline; the heaviest burden of the import surtax falls on Metro Manila households, while incomes of small-farm and other rural households are the least unfavorably affected. Thus, in terms of both GDP and equity effects, the regime of quantitative import restrictions under Simulation I is

inferior to the imposition of an across-the-board import surtax. Indeed, the income reduction for each household group, except Metro Manila, is seen to be lower under Simulation II in comparison to that under Simulation I.

Adjusting through trade liberalization apparently makes for a better income prospect for agricultural households, especially small-farm households. With liberalized

trade and balanced current account (Simulation III), small-farm and large-farm households gain while the three other household groups lose. These results corroborate an earlier finding of the anti-agriculture bias of trade policy in the Philippines (Bautista 1987). Trade liberalization does not appear to involve a tradeoff between the twin objectives of income growth and equity. Interestingly, the less stringent requirement on current-account deficit reduction under Simulation IV leads to an income gain for each household group and the most favorable equity effect among the four trade policy options.

That foreign trade restrictions are likely to hurt agriculture more than the rest of the economy is again suggested by the more adverse impacts of import rationing and surtax on the income of agricultural enterprises relative to nonagricultural enterprises. Furthermore, larger income benefits for agricultural enterprises are shown under the two trade liberalization scenarios compared to those under Simulations I and II.

Finally, it is notable that, in moving from Simulation III to Simulation IV, nonagricultural households (including "other rural") and enterprises benefit much more than their agricultural counterparts; that is, cutting the current-account deficit by one-half, rather than in full, under a liberalized trade regime yields larger income gains for nonagriculture. This result would seem to imply that the capital inflows that accommodated the current-account deficit tend to have a "spending effect" and generate a demand stimulus favoring the nonagricultural sectors.

5. CONCLUSION

The comparative simulation results based on a CGE model of the Philippine economy presented in this paper indicate significant differences in the income effects of alternative trade policy adjustments to deal with an unsustainable current-account imbalance. At the macro level, GDP expectably decreases under a regime of quantitative import restrictions and less markedly, with the imposition of a general import surtax. It is also not surprising that adjustment through the reduction of tariffs to a low and uniform rate leads to a larger GDP. This favorable result, however, is counterbalanced by a substantial loss in government income. It suggests the need to implement an effective tax reform--if government revenue is to be protected--as the country's trade regime is being liberalized.

Our findings concerning the distribution of income gains (and losses) from trade policy adjustments are interesting, especially since the subject has been given much less attention in the development literature. The additional market distortions and rent-seeking that accompany the implementation of import rationing heavily discriminate in favor of the already most affluent Metro Manila households. Moving to a general import surtax represents an improvement in that non-Metro Manila households will be penalized less. However, these first two policy options are shown to be inferior to tariff liberalization, especially if the current-account deficit is to be reduced by only one-half. In the latter case, reducing tariffs to a uniform 5 percent (as targeted officially by 2003) not only improves the average income of each household group but also raises the incomes of small-farm and "other rural" households relative to those of the more affluent Metro Manila, other urban, and large-farm households.

The anti-agriculture bias of restrictive trade policy is part of the explanation for the favorable income and equity effects of import liberalization. Past trade and exchange rate policies in the Philippines distorted production incentives to the benefit of urban-based, import-substituting industries at the expense of export producers, both agricultural and nonagricultural, as well as the small-scale, rural enterprises (Bautista 1987). The broadly based rural income growth associated with a more open trade regime in turn will have strong labor-intensive linkages to the rest of the economy, reinforcing the income multiplier effects that cut across rural and urban sectors. It is not surprising, therefore, that the larger income increases accruing to small-farm and other rural households (relative to the three other household groups) from import liberalization are found to be accompanied also by a relatively large GDP increase.

These results from CGE analysis lead us to conclude that Philippine rural households, especially the lower-income ones, had been heavily penalized by the imposition of import rationing and general import surtax in response to past current-account deficits that were unsustainable. Moreover, overall economic growth would also have been adversely affected. This "lesson of experience" has relevance for the Philippines at the present time, in view of the large and growing current-account deficits in recent years (averaging 4.4 percent of GDP during 1993-95). Indeed, the latter problem confronts many contemporary developing countries that are still heavily agricultural (in the context of sub-Saharan Africa, see Sahn *et al.* 1996). As shown in

this paper, inappropriate trade policy adjustments can stand in the way of promoting a rapid and equitable growth of the national economy.

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